

REMARKS

The Examiner's Office Action of May 30, 2002 has been received and its contents carefully noted. Applicant respectfully submits that this response is timely filed and fully responsive to the Office Action.

Claims 1-20 were pending in this application prior to the aforementioned amendment. By the above actions, claims 1 and 20 are amended. Accordingly, claims 1-20 remain pending in this application, and are believed to be in condition for allowance for at least the reasons stated below.

A. 35 U.S.C. §103 Rejection

The Examiner maintains the rejection of claims 1-4, 9, 14 and 15 under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,769,668 to Tondreault in view of U.S. Patent 4,761,140 to Geib, claims 5, 6, 10, 11, 16, 17 and 20 under 35 U.S.C. §103(a) as unpatentable over Tondreault in view of Geib and U.S. Patent 5,648,890 to Loo et al. (Hereinafter "Loo"), and claims 7, 8, 12, 13, 18 and 19 under 35 U.S.C. §103(a) as unpatentable over Tondreault in view of Geib and U.S. Patent 6,246,583 to Cronin et al. (Hereinafter "Cronin").

Applicant respectfully contends that the claimed invention as presently amended defines subject matter that is clearly patentably distinct over the proposed combination of references.

The claimed invention is directed to a connector for connecting a module to a printed circuit board, the connector including, *inter alia*, a connector body having a pair of lateral supporting parts that extend from a receiving part of the connector body to support a left side, a right side and a bottom of the module in a connection position.



In accordance with claim 1, the connector further includes a metallic cover including a first connection means for pivotably connecting the metallic cover to the receiving part and a second connection means for connection to the lateral supporting parts. The lateral supporting parts each include a stepped part formed on an inner side thereof for supporting the side and bottom faces of the module, and a slotted portion formed on an outer side thereof for receiving a second connection means of the metallic cover.

In accordance with claim 20, the connector further includes a metallic cover including a window for exposing the semiconductor chip when the module is placed in the connection position, and supporting parts which each include a stepped part formed on an inner side thereof for supporting side and bottom faces of the module, and a slotted portion formed on an outer side thereof for receiving the metallic cover.

1. The Proposed Combination of References Fails to Disclose the Claimed Invention

It is respectfully contended that Tondreault, either alone or in combination with Geib, Loo, or Cronin, fails to render obvious the claimed invention as presently since it clearly fails to teach, disclose or remotely suggest several features of the claimed invention.

For instance, as shown in FIG. 1, while Tondreault discloses a connector body (10) having a pair of supporting parts (24, 26), the supporting parts (24, 26) lack the combination of:

- (1) a stepped part formed on an inner side thereof for supporting the side and bottom faces of the module, and
- (2) a slotted portion formed on an outer side thereof for receiving the second connection

means of the metallic cover.

In contrast, the connector in accordance with independent claims 1 and 20 requires lateral supporting parts that each include a stepped part formed on an inner side thereof for supporting side and bottom faces of the module, and a slotted portion formed on an outer side thereof for receiving the metallic cover.

As shown in FIG. 6 of the subject application, when the module (100) is placed in the connection position, the vertical faces (213aa) of the stepped part (213a) support the left and right sides (112, 113) of the module (100) while the horizontal faces (213ab) of the stepped part (213a) support the bottom (114) of the module. Moreover, when the metallic cover (220) is placed over the connector body (213), the second connection means (224) of the metallic cover (220) is received by the slotted portion (213b) of the supporting parts (213).

And while Geib appears to disclose “a hinged, removable metallic cover (14) including first connection means (102) and second connection means (98), to keep a module in place,” it fails to disclose a pair of lateral supporting parts that extend from the connector body and which also include a stepped part formed on an inner side thereof for supporting side and bottom faces of the module, as in claims 1 and 20 of the present invention. In particular, and as shown in FIG. 2 of Geib, a plastic lead chip carrier (16) is received “by an open top surface” of the socket body (12) at the outer surfaces of the carrier (16). Thus, Geib clearly lacks a pair of supporting parts that extend from the body (12) and support side and bottom faces of the carrier (16).

The remaining prior art cited by the Examiner, namely Loo and Cronin, both lack the aforementioned features of claims 1 and 20 to overcome the deficiencies of Tondreault and Geib, and

thus, their combination does not support a case of *prima facie* obviousness of the claimed invention as presently amended. Accordingly, reconsideration and withdrawal of the rejections is earnestly solicited.

Conclusion

Accordingly, since the claimed invention clearly defines over the prior art of record, Applicant respectfully contends that the pending claims are in condition for allowance. Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,

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DRS/TAV



Marked up copy of amended claims

1. (Four Times Amended) A connector for a module [that connects the module, the module] having a semiconductor chip mounted on a rectangular board and a conductive pad on a front side of the board, the connector connecting the module to a printed circuit board in a position wherein a plane of the board is substantially parallel to the printed circuit board, said connector comprising:

a connector body having a receiving part that extends along the front side of the module being in a connection position, and a groove provided in a rear face thereof into which the front side of the module is inserted, said groove having contacts provided therein which contact the conductive pad on both a top surface and a bottom surface of the module when the module is placed in an insertion/withdrawal position while allowing the pad to shift in a direction of insertion/withdrawal when the module is in the insertion/withdrawal position in which the rear side of the module is at a higher level than in the connection position, and a pair of lateral supporting [part] parts that [extends rearward] extend from the receiving part to support a left side, a right side and a bottom of the module in the connection position; and

a metallic cover including a first connection means for [connection] pivotably connecting said metallic cover to said receiving part of said connector body and a second connection means for connection to said lateral supporting [part] parts, [wherein] said metallic cover [is put over and is engaged to] adapted to engage the connector body to sandwich the module between said metallic cover and the supporting part to thereby maintain the module in the connection position.

wherein said lateral supporting parts each include a stepped part formed on an inner side thereof for supporting side and bottom faces of the module, and a slotted portion formed on an outer side thereof for receiving said second connection means of said metallic cover.

20. (Thrice Amended) A connector for a module [that connects the module, the module] having a semiconductor chip mounted on a rectangular board and a conductive pad on a front side of the board, the connector connecting the module to a printed circuit board in a position wherein a plane of the board is substantially parallel to the printed circuit board, said connector comprising:

a connector body having a receiving part that extends along the front side of the module being in a connection position, and a groove provided in a rear face thereof into which the front side of the module is inserted, said groove having contacts provided therein which contact the conductive pad on both a top surface and a bottom surface of the module when the module is placed in an insertion/withdrawal position while allowing the pad to shift in a direction of insertion/withdrawal when the module is in the insertion/withdrawal position in which the rear side of the module is at a higher level than in the connection position, and a pair of supporting [part] parts that [extends rearward] extend from the receiving part to support a left side, a right side and a bottom of the module in the connection position;

a metallic cover that [is put over and is engaged] is adaptable to engage with the connector body to sandwich the module between said metallic cover and the supporting [part] parts to thereby maintain the module in the connection position, said metallic cover including a window for exposing the semiconductor chip when the module is placed in the connection position, and a heat sink

secured to said metallic cover and contacts the semiconductor chip to dissipate heat therefrom, [wherein] at least one of said metallic cover and said heat sink [covers] covering said contacts and the conductive pad to exhibit a shielding function against electromagnetic waves,

wherein said supporting parts each include a stepped part formed on an inner side thereof for supporting side and bottom faces of the module, and a slotted portion formed on an outer side thereof for receiving said metallic cover.